Intelligence MEMOS

From: Glen Hodgson

To: The Canadian energy sector

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Re: **Peak Oil Returns — on the Demand Side**

Remember the learned chatter about an imminent limit to global oil supply? It's now beyond obvious that "peak oil" on the supply side was a fiction; the world has hundreds of years of supply.

However, a peak in global oil demand is within sight and could be reached by the mid-2030s, if not sooner.

The supply-side analysis of peak oil was wrong-headed for two key reasons. First, it did not reflect the massive stocks of non-conventional oil, such as that embedded in porous rock and in Canada's oil sands. Second, and more importantly, supply-side analysis severely underestimated industry capacity to find ways to access these non-conventional sources with new technologies, such as fracking and in-situ production.

Credible economic forecasting and analysis is challenging at the best of times and becomes even harder when underlying structures are in rapid transition. Climate change has of course added a further level of complexity to forecasting as the global economy scrambles to adapt and reduce greenhouse gas (GHG) emissions without throttling economic growth.

How we use and produce energy is a critical factor in this new forecasting reality. Projecting when demand for oil and other high-emission energy sources will plateau and then begin to decline is a central factor shaping the outlook for GHG emissions. Another is whether (and how) the Paris Accord's 2° C global temperature target will be met. They are the central questions in today's peak oil debate.

Energy forecasts are evolving quickly. The International Energy Agency's 2018 energy forecast projected slow but steady growth in global oil demand to 2040 and beyond. However, that forecast was not consistent with the GHG targets embedded in the Paris Agreement. It's worth noting the IEA also projected coal consumption would plateau in 2020. But it is already being crowded out by cheaper natural gas as a feedstock for thermal electricity production. Anecdotal evidence supports the view that peak global demand for coal is already being reached. Decisions in power-hungry China, India and other emerging markets about whether to proceed with construction of new coal thermal capacity will be a major influence on future demand for coal.

Moreover, recent forecasts from industry, government and think tanks suggest that peak oil demand is also in sight. One insightful **forecast** is from BP PLC's detailed 2019 energy outlook which breaks down global demand by sector and region. All demand growth for oil is in emerging markets, principally China and India. Renewables have quickly become price competitive and, along with natural gas, are projected to meet up to 85 per cent of the growth in global energy demand over the next two decades.

For the oil sector, BP has developed no fewer than seven scenarios, a demonstration of the degree of uncertainty in energy forecasting. But the likeliest pathway appears to be the "ongoing transition" scenario, in which global oil demand flattens in the late 2030s to roughly 105 million barrels a day, compared with current global oil demand of around 100 million barrels. In comparison, the "rapid transition" scenario has only 80 million barrels a day by 2040 after demand plateaus in the mid-2020s.

A longer-term **perspective** comes from Royal Dutch Shell PLC, which illustrates a technically possible but challenging pathway to achieving the Paris Agreement goals. Under the Sky Scenario, which includes detailed energy projections to 2070, net-zero growth in global emissions is attained through profound changes to the global economy and energy system. Direct fossil fuel combustion (such as gasoline for mobility) is replaced entirely by electricity, which will grow to five times its current size and provide more than half of end-use energy consumption by 2070.

The Sky scenario projects global oil demand to peak in the 2030s and then begin to decline. Yet while fossil fuels are steadily removed from power generation, oil continues to be widely used as an industrial production input. Oil demand and production are projected to be 50 million barrels a day by 2070, half current levels.

There are many implications for the Canadian oil economy in all of this. Oil demand will remain strong for decades, but demand will flatten and the ultimate trend is down. New pipeline capacity would enhance access to global markets for Canadian producers, with the prospect of better prices, but rising global demand for oil is not open-ended. Canada and its oil industry will have to fight for market share as oil demand reaches a plateau.

In today's turbulent environment, it makes good sense to use multiple scenarios for business and policy planning at all stages of the oil value chain – including production from existing oil assets, asset valuation, exploration and development, new investment, and access to capital. Peak oil demand is in sight and Canadian businesses and governments should be preparing.

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